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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,307	07/10/2003	Yoav Kimchy	25855	4836

67801 7590 11/10/2010

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EXAMINER	
MEHTA, PARIKHA SOLANKI	
ART UNIT	PAPER NUMBER
3737	
MAIL DATE	DELIVERY MODE
11/10/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/616,307	KIMCHY ET AL.	
	Examiner	Art Unit	
	PARIKHA S. MEHTA	3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 August 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-109,113-142 and 144-164* is/are pending in the application.

4a) Of the above claim(s) *113-122,144-158,163 and 164* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-109,123-142 and 159-162* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :10/3/10,9/29/10,9/19/10,8/25/10,8/18/10,8/10/10,7/25/10,7/19/10,7/11/10.

DETAILED ACTION

Election/Restrictions

1. Claims 113-122, 144-158, 163 and 164 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 25 August 2010.

Claim Objections

2. Claims 68, 72-77, 90-109, 123-142, 159 and 162 are objected to because of the following informalities:

In claim 68, it is unclear what is being set forth by "visually co-presenting".

In claims 72-76, it is unclear what step is set forth by "performing a structural imaging modality means", wherein "imaging modality means is also improper means plus function language.

In claim 77, it is unclear how a method can include "a structural imaging modality means".

Claim 90 recites "the effect of wide-aperture collimator" without proper antecedent basis.

Claim 105 recites "each monitored position" without sufficient antecedent basis.

In line 4 of claim 123, "being" should be removed.

In claim 159, it is unclear what is being set forth by "wherein the data processor being configured tomographicly [sic] reconstruct the image". The misspelling of "tomographically" should also be corrected.

In claim 162, it is unclear what limitation is set forth by "wherein the data processor being configured to".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-6, 8, 9-24, 31-48, 50-53, 54-71, 78-91, 93-109, 123-131, 133-142, 159 and 160, are rejected under 35 U.S.C. 103(a) as being unpatentable over Weinberg (US Patent No. 6,628,984), hereinafter Weinberg ('984), of record, in view of Tekalp et al (High-Resolution Image Reconstruction From Lower-Resolution Image Sequences and Space-Varying Image Restoration. *IEEE International Conference on Acoustics, Speech and Signal Processing* p. 169-172. March 1992), hereinafter Tekalp (1992), of record.

Regarding claims 1-5, 19, 20, 22, 24 31, 34, 35, 40-47, 61-65, 67-69, 71, 78, 82, 88, 89, 103-109, 159 and 160, Weinberg ('984) teaches a system and method of using such system, wherein the system comprises a radioactive emission probe 156, a position tracking system 158 configured to track a position of the probe, and a data processor and computerized display 162/164 configured to receive data inputs from the tracking system to tomographically construct an image of a radioactivity emitting source using a plurality of radiation detections received from the probe and the position of the probe relative to the source (i.e. the distance between the probe and source) during said detections (Abstract, col., 2 lines 59-67). Weinberg ('984) teaches the probe as being configured for free-hand scanning, movement within a body lumen, and insertion via an endoscope (col. 10 lines 1-9). Weinberg ('984) also teaches an embodiment where the probe is configured for movement on a linkage system (Fig. 7).

Weinberg ('984) does not teach the data processor as combining multiple low-resolution input datasets to generate a high-resolution output. In the same problem solving area, Tekalp (1992) teaches processing steps and elements configured to combine multiple low resolution images to produce a single high-resolution image output (p. 171 col. 2 – p. 171 col. 1). Tekalp (1992) teaches that using multiple low-resolution input images to yield a single high-resolution output produces improved output results over previous systems and methods which use a single input (p. 169 col. 1). It would have been obvious to one of ordinary skill in the art at the time of invention to have modified Weinberg ('984) to include the

steps and elements of Tekalp (1992) for combining multiple low-resolution input datasets to produce a single high-resolution output, in order to improve the quality of the output image as taught by Tekalp (1992).

Regarding claims 6, 8, 9, 50-52, 90, 93, 94, 123-131, 133, 134, Weinberg ('984) additionally teaches the data processor as receiving data inputs from the probe collimator, which inherently has an aperture/bore that can be subjectively deemed "wide" as claimed (col. 4 lines 17-23).

Regarding claims 10, 53, 95 and 135, Weinberg ('984) and Tekalp (1992) do not expressly teach a square collimator. Applicant has not placed any particular importance on the collimator shape. Furthermore, such changing of shape of a known element without disclosure that it solves a particular problem or presents a patentable advantage over the prior art has previously been held as obvious and unpatentable over the prior art (*In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966)); accordingly, the choice of a square collimator would have been obvious to a skilled artisan at the time of invention.

Regarding claims 11-15, 54-58, 96-100, 136-140, Weinberg ('984) teaches single and multiple collimator embodiments, including a grid collimator embodiment (col. 4 lines 17-26).

Regarding claims 16-18, 59, 60, 66, 81, 101, 102, 141, 142, Weinberg ('984) teaches multiple gamma radiation detectors (col. 10 lines 1-20, col. 11 lines 40-42).

Regarding claim 21, Weinberg ('984) creates an image of count rates as functions of positions (col. 9 lines 39-51).

Regarding claims 23 and 70, Weinberg ('984) and Tekalp (1992) are silent as to the specific tracking system type used. Applicant has not disclosed that the claimed tracking systems solve a particular problem or present a patentable advantage over the prior art. Furthermore, accelerometers, potentiometers, ultrasonic trackers, RF trackers, EMF trackers and optical trackers are all known in the art. Accordingly, it would have been an obvious matter of design choice for a skilled artisan to have chosen any of the known tracking systems with the reference system and method, and to thereby yield the claimed invention.

Regarding claims 32, 33, 36-38, 79, 80, 83-85, 87, Weinberg ('984) teaches the probe as being mounted on a needle (col. 10 lines 29-38).

Regarding claims 39 and 86, Weinberg ('984) teaches simultaneous use of intracorporeal and extracorporeal probes (col. 10 lines 1-37).

Regarding claims 48 and 91, Weinberg ('984) and Tekalp (1992) are silent as to the time intervals of the monitoring. Applicant has not disclosed that intervals of 100-200 milliseconds solve a particular problem or present a patentable advantage over the prior art. Accordingly, it would have been

an obvious matter of design choice for a skilled artisan to have performed the method of Weinberg ('984) and Tekalp (1992) by performing the monitoring at intervals of 100-200 milliseconds.

6. Claims 7, 49, 92, 132, 161 and 162 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weinberg ('984) in view of Tekalp (1992) as previously applied to claims 1, 43, 90 and 123, further in view of Tournier (US Patent No. 6,680,750), hereinafter Tournier ('750), of record.

Weinberg ('984) and Tekalp (1992) lack means and steps for applying collimation-deconvolution algorithms. In the same field of endeavor, Tournier ('750) teaches a collimation deconvolution algorithm, and further teaches that it is useful for improving count rate (col. 3 lines 26-33). It would have been obvious to one of ordinary skill in the art to have modified Weinberg ('984) to further include the collimation deconvolution algorithm of Tournier ('750), in view of the teachings of Tournier ('750).

7. Claims 25-30 and 72-77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weinberg ('984) in view of Tekalp (1992) as previously applied to claim 1, further in view of Krakovitz (US Patent No. 6,212,423), hereinafter Krakovitz ('423), of record.

Weinberg ('984) and Tekalp (1992) do not teach an additional imager. In the same field of endeavor, Krakovitz ('423) teaches a combined nuclear and ultrasonic imaging method and system including a probe sized for rectal insertion wherein the nuclear and ultrasonic images are displayed on a common system of coordinates (col. 6 lines 11-25 and 62-67). It would have been obvious to one of ordinary skill in the art at the time of invention to have modified Weinberg ('984) and Tekalp (1992) to include the ultrasonic imaging and integration means and steps of Krakovitz ('423) in order to provide a more comprehensive image of the radioactivity emitting source.

Response to Arguments

8. Applicant's arguments with respect to claims 1-109, 123-142, and 159-162 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PARIKHA S. MEHTA whose telephone number is (571)272-3248. The examiner can normally be reached on M-F, 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571.272.4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Parikha S Mehta/
Examiner, Art Unit 3737